

# Abstracts of the 5<sup>th</sup> Congress of the Romanian Rhinologic Society

## (1) SURPRISING INTRAOPERATIVE FINDINGS IN THE SURGICAL TREATMENT OF SINONASAL CANCERS

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**PURPOSE:** The most frequent complaint in rhinology is nasal obstruction, commonly caused by nasal masses, which are usually accompanied by nasal discharge, epistaxis and alterations of smell. A sinonasal mass may have various differential diagnoses: congenital, inflammatory, neoplastic or traumatic.

Thus, it is often very difficult to make a differential diagnostic between these diseases due to the unspecific signs and symptoms, and sometimes the initial diagnostic can be changed by the intraoperative and histopathological findings.

**METHODS:** We discuss the case of a 27-years-old male patient admitted for permanent and complete right nasal obstruction, repeated episodes of moderate amount epistaxis, foul-smelling rhinorrhea, profuse headache and right lagophthalmia. The CT scan, due to the extensive bony destruction, suggested a malignancy. A right paralateral approach (Moure) with the ligation of the external right carotid artery was chosen as surgical treatment, with the complete excision of the tumoral mass in large oncological limits.

**RESULTS:** The histopathological examination established no malignant tumoral aspect, suggesting a rather nasal polyposis aspect.

**CONCLUSIONS:** Sinonasal masses have various differential diagnoses and even though the clinical and paraclinical examinations have a great relevance for the main diagnostic, this can drastically change after the surgical treatment.

## (2) ENDOSCOPIC APPROACH FOR PARANASAL SINUSES OSTEOMAS – OUR EXPERIENCE

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Osteomas are benign, osteogenic, slow-growing tumors, consisting mainly of mature compact or cancellous bone. These neoplasms are usually asymptomatic and account for 0.43% -1% of tumor

in population. In the paranasal sinuses, such tumors are found in 3%. We report our experience about the treatment of paranasal sinuses osteomas treated endoscopically. All the patients underwent complete otorhinolaryngological examination, endoscopic examination of the nose and nasopharynx, computed tomography of the paranasal sinuses in the pre- and postoperative periods. The additional intraoperative monitoring was performed using an electromagnetic navigation system. The osteomas were reduced with the help of the diamond sinus burrs. In most cases, the neoplasm was removed completely, which was confirmed by computed tomography data in the postoperative period.

In conclusion, the endoscopy offers better visualization of the anatomy and so, a better approach for lesions involving the frontal, ethmoid and maxillary sinus. As already described, endoscopic approach has, in literature and in our experience, a low rate of postoperative complications, such as stenosis or adherent scars, visual disturbances, ptosis, CSF leakage, and postoperative hemorrhage, short hospitalization and, mostly, lack of visible scars.

## (3) PARTICULAR ASPECTS OF THE PARANASAL SINUS OSTEOMAS

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**PURPOSE:** Osteomas are slow-growing, benign tumors that represent the most common neoplasms of the paranasal sinuses. Most often located in the frontal and ethmoid sinuses, uncomplicated osteomas are usually asymptomatic, but in evolution can present with headache, diplopia, epiphora, proptosis and secondary sinus infections. The purpose of this study is to present and discuss particular aspects of the paranasal sinus osteomas, from symptomatology to surgical approach.

**METHODS:** We conducted a retrospective chart review study at the Department of Otolaryngology of Targu-Mures. Demographic data, tumor characteristics, presenting symptoms, sinus surgery techniques and outcomes of sinus osteomas were recorded.

**RESULTS:** We would like to present the case of a

74-year-old male patient admitted to our clinic accusing frontal headache, diplopia and unilateral epiphora. Paranasal sinus computed tomography showed a compact osseous lesion of 18/24/15 mm in diameter, largely occupying the outer half of the left frontal sinus, with secondary sinus infection laterally to the tumor. Because of the site and size of the tumor, an open surgical approach was employed. Partial excision was conducted without intra- or postoperative complications and the tumor reported histopathologically as osteoma. One year after surgery, the patient remains asymptomatic.

**CONCLUSIONS:** Although endoscopic approaches are preferred when treating paranasal sinus osteomas, since they are associated with reduced morbidity and length of hospitalization, open surgical approaches can still be recommended in select cases. Subtotal resection is warranted and safe when a cleavage plan is not found at the tumor insertion site.

#### (4) POWERED INSTRUMENTS IN SURGICAL TREATMENT OF RHINOPHYMA: HISTOLOGICAL CHARACTERISTICS

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**PURPOSE:** Surgery of rhinophyma (RP) is accompanied by constant intraoperative haemorrhage. Many powered surgical devices allow for simultaneous precise excision of the tissue and haemostasis. However, there are few comparative studies on the specific histologic fingerprint of these devices with emphasis on the thermal tissue damage and particularly on the blood vessels on the resection border.

**METHODS:** Four different powered surgical devices (monopolar "Bovie", UltraCision (US) Harmonic Ace Scalpel, Ultrasurg II (US), Coblator) were used during the surgical resection of a case of rhinophyma (a 48 y/o male patient with rosacea). Partial excision with preservation of the underlying adnexal structures was performed. The effect of the different instruments on the tissues was evaluated according to the following criteria: depth of thermal damage, vessel coagulation – diameter of vessels.

**RESULTS:** The depth of thermal damage for UltraCision, Monopolar, Coblator, Ultrasurg II was 1281, 409, 323, 317. The diameter of the coagulated vessels was 89, 23, 22 and 19 µm respectively.

**CONCLUSIONS:** During resection of a hypervascularized tissue like rhinophyma, an optimal powered surgical unit should demonstrate maximum coagulation properties, thus minimum heat trauma. According to our results, a more effective coagulation capacity (bigger diameter of the coagulated vessels) is related to an increased thermal injury.

#### (5) HAEMANGIOMA OF THE NOSE

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**PURPOSE:** The purpose of this paper is to present the diagnostic and treatment for one case of head and neck haemangioma.

**METHODS:** Haemangiomas are benign vascular tumors that originate in the epidermis, mucosal and deep structures such as bones, muscles and glands. Histologically capillary haemangioma can be of capillary, cavernous or mixed origin. They are common injuries to the head and neck, but rare in the nasal cavity and paranasal sinuses.

This paper presents one clinical case. Patient, 23 years old, after the ENT clinical exam, the CT scan and the angio-CT scan with contrast, was diagnosed with haemangioma of the right nasal fossa with the implantation base on the mucosa of the nasal septum. The histopathological exam sets the final diagnosis: case capillary haemangioma.

**RESULTS:** In this case, treatment was a total resection of the tumor, with the mention that the endoscopic approach was chosen and we went for the removal of the septal mucosa over a distance of 1 cm around the lesion. Postoperative evolution was favourable.

Haemangiomas are benign vascular tumors, which originate in the skin, mucosae and deep structures such as bones, muscles and glands. Vascular lesions are divided into haemangiomas and vascular or lymphatic malformations. The International Society for the Study of Vascular Anomalies has defined haemangioma as a benign vascular tumor. The main difference between haemangiomas and vascular malformations is increased cell turnover in haemangioma.

The differential diagnosis of the nasal haemangiomas includes inverted papilloma, olfactory neuroblastoma, lymphoma, haemangiopericytoma, haemangioendothelioma, arteriovenous fistula, lymphangioma, glomangioma, melanoma, adenocarcinoma, squamous cell carcinoma and metastatic malignancies such as renal cell carcinoma.

**CONCLUSIONS:** Due to their complexity, a multidisciplinary approach is frequently necessary in managing these lesions. The treatment of vascular anomalies is complex. In this case, the surgical option was good for the treatment of haemangiomas.

#### (6) GIANT RHINOPHYMA – CASE REPORT

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**PURPOSE:** The purpose of this paper is to present the di-

agnostic and treatment for one case of giant rhinophyma. **METHODS:** Rhinophyma is a disfiguring condition etiologically related to rosacea and due to hypertrophy of the sebaceous glands of the nose. It leads to a progressive thickening of the skin up to the development, in some cases, of severe deformities that result in significant functional deficits and serious cosmetic damage.

This paper presents one clinical case: 67-year-old patient, living in an urban area, presented with a giant rhinophyma which caused him not only upper airways obstruction and difficulty in eating, but also aesthetic and psycho-social disadvantages. The histopathological exam sets the final diagnosis and stages the lesions. The diagnosis is easy to establish based on the clinical features of the disease. In advanced forms of rhinophyma, when the tumor is giant, the main method of treatment is surgery.

**RESULTS:** In this case, treatment was a total resection of the tumor. In gigantic forms, it can be associated with a suborbital region lymphedema, having as a result blepharitis, conjunctivitis and keratitis. An ophthalmological exam must be required in these situations.

The differential diagnosis is made with: angiosarcomas, squamous carcinoma, basocellular carcinoma, sebaceous carcinoma, dermal carcinoma, skin metastasis especially in pulmonary neoplasm, eosinophilic facial granuloma, haemangioma, nasal keloid scars, lymphoma. Postoperative evolution was favourable.

Acne rosacea is a chronic or long-term facial skin disorder and rhinophyma is the most advanced form of this disease.

**CONCLUSIONS:** Rhinophyma gives an inaesthetic, sometimes monstrous, aspect of the nose and of the face too, that requires a radical surgical treatment in cases where the tumoral mass is big, obtaining a satisfactory aesthetic and functional aspect that dissipates the respiratory obstruction and also the alimentation discomfort. The histopathological exam is very useful to establish a certain diagnostic and lesions progression.

#### (7) WHICH IS THE BEST APPROACH IN SINONASAL CANCERS?

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**PURPOSE:** Malign tumors of the nasal cavity and the paranasal sinuses are rare, counting for less than 3% of the ENT malignancies. The surgical approaches to anterior skull base lesions can be divided into the following: traditional open craniofacial approaches, subcranial approach, endoscopic approach or combined approaches in which a craniotomy is associated with an endonasal endoscopic approach.

Certain tumors may require a craniotomy to clear the superior, superolateral and anterior aspects of the disease but, for a defined nasal and paranasal sinus tumor which is resectable endoscopically, an endoscopic-assisted approach may be considered. When it comes to patients with extended disease or significant intraorbital or intracranial involvement, a combined approach should be taken into consideration.

Choosing the best type of approach in sinonasal cancers must take into consideration the oncologic principles, histopathology exam, extent of disease and surgeon skill and experience.

**METHODS:** We reviewed the technical aspects of each type of approach of the sinonasal malignancies and also, the main principles in the surgical management of this pathology, and we highlighted the advantages and disadvantages of each type of approach. Furthermore, we selected one particular case of a 50-year-old male patient diagnosed with inverted papilloma with frontal sinus invasion, who required a combined surgical approach.

**RESULTS:** The combined approach is superior to any of the simple approaches alone. Although the endoscopic approach is useful to assess, has fewer complications, faster recovery time and better cosmetic results, there are lesions involving the sinonasal region and skull base that may not be accessible to sinonasal endoscopy.

**CONCLUSIONS:** The surgeon must be trained to adapt to every situation, to be able to convert the endoscopy into an open approach or to use the combined approach in the surgical treatment of sinonasal tumours.

#### (8) MIDFACIAL DEGLOVING – A USEFUL APPROACH TO ETHMOIDO-MAXILLARY TUMORS

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**PURPOSE:** Endoscopic surgery has its lion share in resecting sinonasal tumors. However, not all tumors located in the maxillary and ethmoid sinus can be completely resected solely via an endoscopic approach.

**METHODS:** 12 patients were operated using the midfacial degloving approach in the last 10 years. There were 8 men and 12 women, all operated for extensive midfacial tumors. In all cases, imaging showed lateral extension of the tumor that was beyond the reach of the endoscopic approach. In all cases we performed a total maxillectomy and ethmoidectomy via the midfacial degloving approach. The follow-up period was at least 24 months.

**RESULTS:** In all cases we could achieve complete removal of the tumor. Some cases required additional radiotherapy and this is discussed in detail. No complications were encountered. There were 3 recurrences

in 2 patients that had not received additional radiotherapy and one who had. All the other cases were disease-free at the last follow-up. We also discuss the advantages of the midfacial degloving approach over other open approaches.

**CONCLUSIONS:** Midfacial degloving is still a useful approach to ethmoido-maxillary tumors that cannot be resected via endoscopic surgery. It offers a good exposure over the region avoiding facial scars.

### (9) CHALLENGES AND PITFALLS IN CHOANAL ATRESIA

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**PURPOSE:** Choanal atresia represents a challenging surgical problem even for the experienced otorhinolaryngologist surgeons and it is defined as a failure in the development of communication between the nasal cavity and the nasopharynx. This type of malformation represents the most common congenital abnormality of the nose. The diagnostic of choanal atresia is confirmed by performing a nasal endoscopy that allows examining the choanal opening, as well as looking for other types of masses or blockages that could lead to nasal obstruction.

The goal of the surgery is to create a large opening of the choana by removing the atresia plate, resecting the posterior vomer, and drilling the medial bony processes of the medial pterygoid, relining as much of the raw surface of the opened choana with mucosal flaps if it is possible.

**METHODS:** We present the case of a patient for whom we performed an endoscopic choanoplasty in which we removed the bony atresia and drilled the vomer. A bilateral nasal pack was placed and removed after 3 days. The patient was discharged 5 days after surgery, without any complications.

**RESULTS:** The postoperative follow-up within 6 months showed that the symptoms improved significantly. The endoscopic evaluation showed that both choanae remained patent.

**CONCLUSIONS:** Endoscopic transnasal choanoplasty is considered the standard therapeutic choice in the choanal atresia. Nasal endoscopy and preoperative computed tomography with 3D reconstruction may significantly help the guidance of the surgical procedure.

### (10) MY EXPERIENCE IN DORSUM PRESERVATION RHINOPLASTIES PERFORMED THROUGH AN ENDONASAL CLOSED APPROACH

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**PURPOSE:** This new approach, Preservation Rhinoplasties, marks a distinct change from both "resection rhinoplasty" and "structural rhinoplasty". The three basic principles are preservation of the skin sleeve, the dorsum and alar cartilages. Dorsal hump reduction is an essential step consisting in resecting portions of both the bony and cartilaginous dorsum. Currently, for aesthetic and functional reasons, after dorsal height reduction, the nasal dorsum must be reconstructed. In this study I preferred to perform Dorsum Preservation Rhinoplasty (DPR) through an endonasal closed approach.

**METHODS:** This article will present the author experience in nasal dorsum preservation rhinoplasty, based on 51 clinical cases performed over a 3-year period, using an endonasal closed approach. The principles of Preservation Rhinoplasty are the main three, as follows: 1. intact skin envelope elevation (S), 2. dorsal preservation (D) and 3. alar cartilage preservation (A). The classification of Preservation Rhinoplasty (PR): complete (PR-C), partial (PR-P). Partial Preservation Rhinoplasty can be subdivided in PR-P (D-Dorsal) and PR-P (A-Alar). The operative technique is as follows: a). endonasal approach; b). removal of a septal strip in the subdorsal area; c). complete lateral, transverse and radix osteotomies; d). dorsal reduction utilizing a "push down" operation (PDO) or a "let down operation" (LDO). The PDO consists in downward impaction of the fully mobilized nasal pyramid and is utilized in patients with smaller humps (Less than 4 mm). The LDO consists in a maxillary wedge resection and is performed in patients who need more than 4 mm of lowering. From a total of 51 patients, 31 had a dorsal preservation operation utilizing a push down operation (PDO) and 20 patients underwent a let down operation (LDO).

**RESULTS:** Postoperatively, there were no dorsal irregularities or inverted-V deformities. Based on the authors' experience, to perform a PDO/LDO is justified in selected primary patients. The main question before any primary rhinoplasty procedure should be "Can I keep the nasal dorsum intact?" The results after dorsal preservation rhinoplasty: more natural postoperative dorsum lines and a "not operated" aspect without the need for midvault reconstruction.

**CONCLUSIONS:** The Preservation Rhinoplasty goal is to approach all rhinoplasties from the preservation perspective and apply the appropriate technique for

the individual patient – preserve an intact skin envelope and alar cartilages, reducing the number of grafts and simple rasping in case of dorsum revision. This technique is quick and easy to perform by any rhinoplasty surgeon. The rhinoplasty surgeon needs to modify existing routine techniques.

### (11) POST-TRAUMATIC SEPTORHINOPLASTY

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**PURPOSE:** These are some of the most difficult nose surgery procedures and involve reconstructing the different elements of the nose such as the bones, the septum, the cartilages. These problems also lead not only to cosmetic defects but to breathing difficulties. Posttraumatic surgery is difficult because of the added variables of the initial trauma, septal deformities, as well as frequent airflow obstruction complaints from the patient.

**METHODS:** Medical records of patients with nasal trauma treated in the ENT Clinic Timisoara between 2010-2019 were retrospectively evaluated. The total number of patients was 300. The surgical procedure included septoplasty, placement of spreader grafts, inferior turbinate outfracture, osteotomies and/or augmentation.

**RESULTS:** Injuries to the nose, frequently lead to damage to the bone and cartilage support, and change the appearance of the nose, resulting in deviation, asymmetries and airways problems. Deviation of the bones and cartilages of the nose can be reset with relative success rate within the first week to 10 days after the injury. It is important to understand that, following a more significant injury to the nose, it takes six months or longer before more extensive corrective surgery. When evaluating the nose after an injury, considerations of shape and airways are both very important.

**CONCLUSIONS:** Closed reduction of the nasal fractures appears to be an effective method of treatment. Factors such as timing of surgery of the nasal septum, delay in treatment and other associated injuries may influence the overall result.

### (12) EMERGENCY MANAGEMENT IN NASAL PYRAMID FRACTURES

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**PURPOSE:** Fractures of the nasal pyramid are very common due to prominent position, central location and minimum impact resistance. The purpose of the study is to evaluate the diagnostic and therapeutic management of nasal pyramid trauma in patients presenting urgently at the ENT Clinic Timisoara.

**METHODS:** The study was performed on a group of 74

patients (2017-2018) with nasal pyramid fractures, with an average age of 35 years (11-65 years), of whom 53 men and 21 women. Distribution by etiology: road accidents – 30 cases; aggression – 17 cases; accidents at work – 12 cases; sport activities – 5 cases; falls from height – 5 cases; domestic accidents – 3 cases; same-level falls – 2 cases.

Diagnosis consists of: anamnesis, symptomatology, complete ENT clinical examination and imaging assessment (x-ray, CT) as a legal document.

Final treatment was performed only before oedema or after it disappeared and consisted of: restoring skin lesions, if any; drainage of septal hematoma – 5 cases; simple reduction – 44 cases; lifting depressed segment of nasal bones – 14 cases; nasal packing if is necessary; nasal pyramid repositioning and external fixation for 7-8 days; drug treatment (antibiotic, analgic, haemostatic); surgical treatment – 11 cases.

**RESULTS:** Early and late complications in the study group: septal hematoma (2 cases), septic abscess (2 cases), nasal synechiae (9 cases), septic necrosis of the nasal cartilage (1 case), permanent nasal dysmorphisms by nasal obstruction and septal dislocation (12 cases). Surgical treatment consisted of subperichondrial-mucosal septal resections, reposition, septoplasties. Septal correction associated with correction of the nasal pyramid by resolution of aesthetic lesions – 8 cases.

**CONCLUSIONS:** The complete diagnosis and the correct treatment of emergency situations should be made as soon as possible in order to achieve a functional and aesthetic prognosis as favourable as possible, avoiding further complications.

### (13) UTILITY OF OPEN RHINOPLASTIC APPROACH IN CHILDREN

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**PURPOSE:** Open rhinoplasty is a typical surgical procedure employed by plastic surgeons to correct nasal appearance and obtain aesthetic results. Although the technique is more time consuming than closed surgery, some specialists prefer the method for its advantages over the latter. In children, some nasal malformations occurring around the nasal pyramid can benefit from an open, direct incision approach or can be removed by using the open rhinoplastic approach as we demonstrate in our case presentations.

**METHODS:** 5 paediatric patients with nasal dermoids, alar incompetence and glioma of the dorsum nasi have been reviewed from the point of view of the surgical technique and the results obtained.

**RESULTS:** in 4 out of 5 cases, aesthetic appearance has been completely satisfying. No abnormal nasal pyramid development after surgery could be noticed.

**CONCLUSIONS:** The open rhinoplastic approach is a safe method to be used in malformations located around the dorsum nasi in children. Although its validity and long-term results remain to be confronted by time, our experience suggests that we can rely on this kind of surgery for good results, without regard for the age of the patient.

#### **(14) EVALUATION OF PATIENT SATISFACTION AFTER NASAL SEPTOPLASTY USING PEAK NASAL INSPIRATORY FLOW AND THE QUESTIONNAIRE FOR NASAL OBSTRUCTION SYMPTOM EVALUATION (NOSE) SCORE**

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**PURPOSE:** In this study we looked at the PNIF changes and the relationship between patients' satisfaction and PNIF values after septoplasty surgery.

**METHODS:** We enrolled a number of 48 patients diagnosed with septal deviation and 32 patients without septal deviation. NOSE and PNIF were evaluated preoperatively the day before surgery and 14 days postoperatively in both groups of patients.

**RESULTS:** A statistically significant correlation was found for Pearson's analysis between NOSE and PNIF scores ( $p=0.03$ ). A moderate correlation was identified between these 2 variables ( $r=0.34$ ).

**CONCLUSIONS:** NOSE and PNIF scores showed an important statistical difference in the septal deviation group compared to the control group. Anterior and antero-posterior septal deviations presented high NOSE scores and low PNIF scores.

#### **(15) THE USE OF SINUS ULTRASONOGRAPHY IN THE MANAGEMENT OF MAXILLARY AND FRONTAL SINUSITIS**

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**PURPOSE:** The purpose of this study is to present the results of the use and efficiency of sinus ultrasonography in the diagnosis of maxillary and frontal sinusitis (adults, pregnant women and children). The image exploration is complementary to anamnesis, endoscopic examination and it plays an important role in differential diagnosis, therapeutic strategy setting, post-therapeutic monitoring. The sinus ultrasonography is an easy way to diagnose and reliable method in the imagistic diagnostic of sinusitis.

**METHODS:** The study was performed on a group of 94 patients with maxillary and frontal sinusitis over a period of 3 months, with major and minor symptoms and suggestive signs that were performed in sinus ultraso-

nography. Distribution by sex: male – 52 cases and female – 42 cases. Distribution by age group: 7-15 years (7); 16-25 years (17); 26-35 years (29); 36-45 years old (24); 46-55 years (12); over >56 years (5). Imaging investigations performed: sinus x-ray – 89 cases and CT – 5 cases.

**RESULTS:** Results of sinus ultrasonography: normal appearance – 24 patients (18 adults, 4 children, 2 pregnant women); liquid collections: maxillary sinus – 40 cases (19 bilateral, 21 unilateral), frontal sinus – 13 cases (4 bilateral, 9 unilateral); mucosal thickening – 17 cases (15 – maxillary sinus, 2 – frontal sinus). X-ray and CT results confirmed, in 67% of cases, sinus ultrasonography diagnosis.

**CONCLUSIONS:** The sinus ultrasonography is a fast, non-invasive, cheap and easy technique. It can be used routinely, representing a stage in the algorithm and management of the current diagnosis of the patient with suspected maxillary and frontal sinusitis.

#### **(16) FUNGAL RHINOSINUSITIS: WHY DO I LIKE IT?**

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**PURPOSE:** To perform a prospective comparative *in vitro* study of the nasal mucociliary epithelium activity in patients with fungus ball of the maxillary sinus for adjustment of the diagnostic protocol, conservative treatment and to establish the variety of infectious agents involved in this clinical entity.

**METHODS:** Clinical prospective study. Study group I: 30 patients – surgical treatment and conservative treatment with dry extract BNO 1016 14 days preoperatively, nasal saline irrigations, topical vasoconstrictors. Study group II: 30 patients – surgical treatment and conservative treatment with nasal saline irrigations, topical vasoconstrictors. Methods: patients were interviewed using the SNOT 22 test. Microbiological and histopathological methods were used. Instrumental methods (nasal endoscopy, CT, *in vitro* estimation of vibrational activity of pituitary cells) were performed.

**RESULTS:** Fungus ball is a localized, non-invasive, slightly aggressive, extramucosal fungal rhinosinusitis. The importance of restoring the nasal mucosa function and the local immunity after a fungal process is primary in improving the quality of life of our patients. The mucociliary system is an important component of the innate system of the respiratory tract protection against the action of pollutants, allergens and pathogenic microorganisms. Mucociliary clearance is a natural process of airway cleaning. Failure of the nasal mucociliary clearance and local immune-biochemical indices is one of the basic links in the pathogenesis of many rhinosinusal diseases. Statistic test applied: Anova. In our study, the frequency of ciliary movements after the post-surgical conservative treatment

was statistically significantly higher in patients of group I compared to patients in group II ( $4.9 \pm 0.06$  Hz and  $8.5 \pm 0.1$  Hz, respectively,  $p < 0.001$ ), and subjects in the control group ( $4.9 \pm 0.06$  Hz and  $11.9 \pm 0.3$  Hz, respectively,  $p < 0.001$ ).

**CONCLUSIONS:** (1). The frequency of ciliary movements was statistically higher in patients in group I compared to those in group II. (2). This can be caused by the use of dry extract BNO 1016 that has an anti-inflammatory and regenerative effect, facilitating the dissolution of mucous secretions and restoring the integrity of the nasal mucosa and mucociliary epithelium. (3). Processes occurring in the mucociliary epithelium, including non-specific and specific immunity, require a more detailed description, because they allow to understand the physiopathological mechanisms of fungal rhinosinusitis and are potential therapeutic targets.

### (17) RECENT UPDATES ON BACTERIAL SPECTRUM IN ACUTE AND CHRONIC RHINOSINUSITIS AND THE CORRECT TREATMENT

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**PURPOSE:** It is well known already that the bacterial etiology in acute and chronic rhinosinusitis has represented a continuous health concern in the last years. The problematic involves the changes observed by the specialists regarding the bacterial spectrum and also the modified antibiotic treatment management due to those changes. The aim of the study was to identify the bacterial spectrum in acute and chronic rhinosinusitis in the adult population and also to establish the correct antibiotic treatment after testing the antibiotic susceptibility.

**METHODS:** We performed a prospective study on 100 patients diagnosed with acute bacterial or chronic (bacterial) rhinosinusitis. All patients were sampled in order to identify the responsible bacterial pathogen. After establishing the etiology, tests for antibiotic sensitivity were made.

**RESULTS:** Important changes regarding the bacterial spectrum in acute bacterial and chronic rhinosinusitis were observed. Those changes led to a modified antibiotic susceptibility of the bacteria involved in the sinusal pathology.

**CONCLUSIONS:** The study results demand for a new antibiotic treatment management and draws attention on the high levels of antibiotic resistance of the common bacteria responsible for the sinusal disease.

### (18) PARTICULARITIES OF THE ANTROCHOANAL POLYP

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**PURPOSE:** Nasal polyps are benign mucosal growths indicative of chronic inflammation. They arise most commonly in the setting of chronic rhinosinusitis in adults. The antrochoanal polyp is a solitary sinonasal polyp that arises within the maxillary sinus. It passes to the nasopharynx through the sinus ostium and posterior nasal cavity, enlarging the latter two. Antrochoanal polyp is usually unilateral and appears in younger patients. Macroscopically, it has a cystic intramaxillary portion and a solid intranasal portion. Microscopically, it is similar to a maxillary cyst of the mucosa. Nasal endoscopy, computed tomography and magnetic resonance are the main diagnostic techniques. The gold standard for diagnosing an antrochoanal polyp is a CT scan showing a hypodense mass arising from an enlarged, opacified maxillary sinus. The polyps do not cause bony destruction. The location of the polyp and its soft consistency cause its characteristic dumbbell shapes. Surgery is the indicated treatment for the antrochoanal polyp, endoscopic resection being the most recommended.

**METHODS:** We present a case of a 51-year-old woman who was clinically and imagistically diagnosed as having left antrochoanal polyp. Intraoperatively, a bilateral maxillary fungal rhinosinusitis was discovered. In this case, we suppose that the primary disease was the fungal rhinosinusitis and the antrochoanal polyp was a later manifestation. The treatment consisted in bilateral antrostomy with the evacuation of the maxillary sinuses and the excision of the antrochoanal polyp.

### (19) SEPTAL DEVIATION – CLINICAL AND THERAPEUTIC PARTICULARITIES

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**PURPOSE:** Nasal septal malformations are deflections of the septum in the frontal and sagittal plane, due to an endogenous or exogenous cause, causing functional disorders. They can present as spurs, ridges, spines, sprains, deviations – various inflections in the form of letter C or S, surgical treatment being represented by excisions and various techniques of septoplasty, classical or endoscopic surgery. The most common complications of septal deflection are headache, rhinosinusitis, rhinopharyngitis, epistaxis, nocturnal apneic syndrome, otitis, aesthetic pyramidal deformities.

**METHODS:** We performed an observational retrospective study in the Otolaryngology Department of the Bucharest Military Central Emergency Hospital, performed on a group of 486 patients, 82 female and 404 male, over 1 year (2018-2019), patients being evaluated clinically (nasal endoscopy) and imagistically (CT).

**RESULTS:** In the study, 32% of the patients were female, 68% male, showing predominance among men. The most common complications of nasal septal deflection are headache (87%), rhinitis (89%), sinusitis (41%) and pharyngitis (33%). The nasal septal deviation to the right was found in 51.2% of the patients, while 48.8% had it to the left. A percentage of 14% of the deviations were treated endoscopically, while 86% of cases had the common treatment. A percentage of 17% of septal deflections was traumatic, with the remainder being endogenous.

**CONCLUSIONS:** Nasal septal deflections play a critical role in the symptoms associated with nasal obstruction, early diagnosis, and appropriate medical and surgical treatment are required for the management of this pathology and for the associated complications.

## (20) ETIOPATHOGENIC AND CLINICAL ASPECTS OF CHRONIC RHINOSINUSITIS WITH AND WITHOUT NASAL POLYPOSIS

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**PURPOSE:** Chronic rhinosinusitis is a clinical pathology that reunites a group of heterogeneous inflammatory and infectious diseases, which affects both the nasal and paranasal sinus mucosa and can have multiple causes – local or systemic. Nasal polyposis is an inflammatory condition of the nasosinusal mucosa that can be uni- or bilateral, associated or not with chronic rhinosinusitis.

**METHODS:** We present a retrospective study on a lot of 820 patients diagnosed with chronic rhinosinusitis with or without nasal polyposis admitted to SUUMC ENT clinic in five years (May 2014 – May 2019) in order to identify the etiology, the clinical aspects and the pathogenic mechanism of the disease.

**RESULTS:** The main subjective complaints of the patients were unilateral or bilateral nasal obstruction, anterior or posterior nasal discharge, hyposmia or anosmia, facial pain or pressure, cough, fatigability, dental pain or ear pain. From the total of 820 chronic rhinosinusitis cases, 49% – 402 cases were with nasal polyposis. The majority of patients had various local predisposing factors that triggered the onset of the disease or factors that appeared as a consequence that maintained the pathologic status. Therefore, ana-

tomically defects such as obstructive deviated nasal septum and chronic hypertrophic rhinitis were most frequently identified, associated to other local factors like rhinosinusal tumors, trauma or odontogenic starting point or systemic factors like allergies.

**CONCLUSIONS:** The factors involved in the etiopathogeny of chronic rhinosinusitis with or without nasal polyposis can be classified in intrinsic, such as genetic or congenital conditions (the association with cystic fibrosis), anatomical defects, allergic status, or extrinsic – viral, bacterial or fungal infections, trauma or foreign bodies, exposure to pollutants.

## (21) CLINICAL, ETIOPATHOGENIC AND THERAPEUTIC CONSIDERATIONS IN HYPERTROPHIC RHINITIS

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**Alina Vulcu<sup>1</sup>, Alina Anghel<sup>2</sup>, Ion Anghel<sup>1</sup>**

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**PURPOSE:** In this paper we emphasize the clinical, etiopathogenic aspects as well as the surgical and drug treatment options, given the frequency of the pathology in rhinology and its major impact on the quality of life of the patients.

**METHODS:** A study that included patients admitted to the ENT Clinic of "Carol Davila" Central University Emergency Military Hospital, Bucharest during 2014-2018 and diagnosed with hypertrophic rhinitis was conducted.

**RESULTS:** During the 5 years, 754 patients with hypertrophic rhinitis were diagnosed and operated. They had chronic nasal obstruction (dominant symptom), sneezing, rhinorrhea, hyposmia-anosmia, headache, sleeping disorders, asthenia, decreased concentration and work capacity.

The anamnesis was also characterized by their dependence on nasal vasoconstrictor substances.

A percentage of them also had septum deviation.

During the course of the disease, complications may arise from the nature of the otitis or pulmonary suffering as a result of the anatomical links between the ENT sphere and the respiratory tract.

The treatment that the patients benefited from was surgical, using lateral luxation of the turbine bone, turbinectomy, turbinotomy or coagulation techniques by electrocautery or radiofrequency coagulation. All patients had favourable evolution.

**CONCLUSIONS:** Hypertrophic rhinitis is a very common disease with a growing prevalence, benign chronic disease, which brings important changes in the quality of life and can be associated with hearing problems, asthma, sleeping disorders.



## (22) THERAPEUTIC MANAGEMENT IN CHRONIC RHINOSINUSITIS: MEDICAL AND SURGICAL TREATMENT (ENDOSCOPIC SURGERY VERSUS CLASSIC SURGERY)

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**PURPOSE:** Chronic rhinosinusitides represent infections of the paranasal sinuses due to long-term obstruction of the ostiomeatal complex outflow and are a current medical challenge because they affect patient quality life and the treatment involves major monetary costs. Nowadays, the prevalence of chronic rhinosinusitides in Romania is about 11%.

**METHODS:** The present study is retrospective, descriptive and was performed at the SCUMC Bucharest Otolaryngology Clinic on a group of 230 patients diagnosed with chronic rhinosinusitis between 1<sup>st</sup> of June 2018 – 1<sup>st</sup> of June 2019. 105 men and 125 women were enrolled in the study.

**RESULTS:** Most of chronic rhinosinusitides (41.5%) were located in the maxillo-ethmoidal sinus, followed by the maxillary, sphenoidal, frontal sinuses and 18% of them consisted in pansinusitis. Surgical treatment was achieved in 79.5 % of patients, 5.5% benefited from medical treatment and 15% of patients received both medical and surgical treatment. Functional endoscopic sinus surgery was performed in 63.5% of patients, traditional surgical treatment in 14.2% and 22.2% required both traditional and endoscopic surgery. Intranasal maxillary sinus antrostomy was the main endoscopic procedure used (37.5%).

**CONCLUSIONS:** Chronic rhinosinusitides maintained an increased incidence in females and the most affected age ranges were 30-40 and 40-50 years, the main cause being obstruction of the ostiomeatal complex. Despite improvement of treatment methods, most postoperative relapses were found in endoscopic surgery. Chronic rhinosinusitis remains a disorder with an increased incidence in our country in which environmental factors and socio-economic conditions can be considered for the development of this pathology.

## (23) EPISTAXIS - THE EXPERIENCE OF SUUMC ENT CLINIC IN ETIOLOGY AND TREATMENT

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**PURPOSE:** Epistaxis is the most frequent emergency in ENT practice and represents the bleeding from the

nasal cavity. Depending on the source, the epistaxis can be anterior or posterior.

Causes which determine epistaxis are local (acute and chronic rhinosinusitis, craniofacial trauma, tumors), general (cardiovascular, endocrine and hematologic diseases) and idiopathic.

**METHODS:** The retrospective study comprises the patients admitted to SUUMC ENT Clinic for five years (2014-2019) and we recorded 815 cases with bleeding from ENT pathology. The study group comprises 435 (53.3%) men and 380 (46.6%) women. Etiological diagnosis was established with paraclinical investigations (X-rays, CT, MRI).

Epistaxis treatment depends on the cause and targets three objectives: stopping the bleeding, rebalancing the general condition of the patient and treating the cause to prevent relapses.

**RESULTS:** We recorded a higher incidence of the anterior epistaxis (69%). The most frequent cause of the epistaxis included cardiovascular diseases (44%), followed by anatomical abnormalities (20%), rhinosinusitis (13%) and trauma (11%). Depending on the severity, location and general condition of the patient, 65% from the cases received local haemostasis and medical treatment and the rest of them (35%) received surgical treatment.

**CONCLUSIONS:** The higher incidence of epistaxis was recorded in males, affecting predominantly age groups between 50-59 years and over 60 years. Epistaxis was associated most frequently with cardiovascular diseases, mainly hypertension. Despite the improvement of therapeutic methods, multiple recurrences are recorded by not following the systemic treatment or not receiving annual evaluations of the health status. Although epistaxis is benign in the majority of cases, it can be a symptom of a life-threatening condition and requires prompt etiological and therapeutic management.

## (24) POSTOPERATIVE COMPLICATIONS IN RHINOSINUSAL ENDOSCOPIC SURGERY (EXPERIENCE OF THE CENTRAL EMERGENCY MILITARY HOSPITAL)

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**PURPOSE:** Endoscopic surgery of chronic rhinosinusitis revolutionized the entire medical world, because this technique is far superior to the classic technique (CALDWELL-LUC) regarding the amelioration of long-term symptoms and the postoperative complications.

**METHODS:** We present an objective and retrospective

study, which include 75 patients admitted to SUUMC ENT Clinique for 1 year (1<sup>st</sup> of June 2018 – 1<sup>st</sup> of 2019) with rhinosinus pathology. The method of treatment adopted was the endoscopic surgery. Most of the patients were men (56 %) and the most frequent diagnostic was Chronic Sinusitis Maxillaris.

The most frequently used endoscopic technique was Maxillary Antrostomy (90 %), Ethmoidectomy Procedure (80 %) and the least used procedure was Sphenoidectomy.

**RESULTS:** The most common postoperative complications of the Antrostomy procedure are: the SYNECHIAE and the EDEMA of the NASOLACRIMAL DUCT. The most common postoperative complications of the Ethmoidectomy procedure are: the PALPEBRAL ECCHYMOSIS and the PALPEBRAL EMPHYSEMA.

**CONCLUSIONS:** Although this study proposes a more accurate postoperative assessment of patients with sinus pathology, operated endoscopically, we must consider the following: some patients operated in our clinic were from the province (39%), and their postoperative assessment was the most often done by doctors in patients' area of origin; for patients in Bucharest, it is possible that, if postoperative complications occur, their treatment could be done in other clinics in Bucharest, not in our clinic.

#### (25) TREATMENT IN ACUTE RHINOSINUSITIS: OUR CLINIC'S EXPERIENCE

**Alina-Georgiana Vulcu<sup>1</sup>, Romeo Costin<sup>1</sup>, Gabriel Ganea<sup>1</sup>, Mara Neboleanu<sup>1</sup>, Alina-Georgiana Anghel<sup>2</sup>, Ion Anghel<sup>1</sup>**

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**PURPOSE:** Rhinosinusitis is one of the most common conditions for which patients seek medical care and one of the most frequent reasons for antibiotic prescription.

**METHODS:** This paper is a retrospective study conducted in our ENT clinic over a period of 5 years and has the purpose of reviewing the treatment guidelines of this pathology, including all forms of presentation encountered in our clinic and in the specialty literature.

**RESULTS:** 2247 patients, aged 18 to 70 years old, were included in the study and sought medical help in our clinic between January 1<sup>st</sup> 2014 and January 1<sup>st</sup> 2019. The most common forms of presentation were acute viral rhinosinusitis, followed by the acute bacterial form, and the least encountered form was of fungal etiology.

**CONCLUSIONS:** Due to the fact that antibiotics are frequently administered in this disease, it is important to know the proper treatment for each form in order to prevent antibiotic overuse, infectious complications and to make an appropriate use of medication.

#### (26) CLINICAL AND PATHOGENIC CONSIDERATIONS IN ACUTE RHINOSINUSITIS. THE ENT CLINIC BACKGROUND

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**PURPOSE:** Acute rhinosinusitis is defined as an acute inflammatory short-term affliction (up to 4 weeks) of the nasal mucosa and paranasal sinuses.

**METHODS:** The aforementioned retrospective study has been conducted over a 5-year period (January 2014 – January 2019) in the ENT clinic of the “Dr. Carol Davila” Central Military Hospital, Bucharest. It focused on the etiopathogenic and clinical aspects of 2247 patients, diagnosed with acute rhinosinusitis.

**RESULTS:** Most often, acute rhinosinusitis had an infectious cause (viral, bacterial or fungal). Other etiologies include allergy and, rarely, autoimmune disorders. The main symptoms include: nasal obstruction, anterior and/or posterior rhinorrhea, facial bloating and pressure. Nonspecific symptoms include headache, hypo-/anosmia, fever and fatigue.

**CONCLUSIONS:** The most frequent external factors causing acute rhinosinusitis are: cold temperatures, moisture, drastic temperature swings and air pollution. Frequent internal factors are: local anatomical defects (septum deviation, hypertrophy of the nasal turbinates, nasal polyposis, allergies or dental abscess). Less common symptoms include nasal trauma and systemic diseases.

#### (27) THERAPEUTIC MANAGEMENT OF CHRONIC MAXILLARY SINUSITIS

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**PURPOSE:** Chronic maxillary sinusitis (CMS) in adults is a significant problem of the health due to its frequency. It is caused by chronic inflammation of the nasal and sinus lining for over 3 months and may be preceded by an acute episode. The aim is to present 46 cases with CMS with allergic etiology and their therapeutic management.

**METHODS:** The diagnosis of all cases was based on typical signs and symptoms, X-ray examination, CT scan of paranasal sinuses, nasal endoscopy and skin-prick tests or RAST to confirm the allergic elements of chronic symptoms. The surgery was applied in all cases with CMS nonresponsive to medical treatment (antibiotics, oral antihistamines, intranasal steroids and nasal decongestants). In 26 cases we performed endoscopic sinus surgery (ESS) via the canine fossa. External sur-

gical approach Caldwell-Luc procedure was performed in the rest 20 cases.

**RESULTS:** Follow-up ranged from 1 to 3 years with a median of 2.5 years. The external procedure consisted in removing all the diseased mucosa with the hope that new healthy mucosa will regrow. Endoscopic sinus surgery revealed no recurrence. Allergic CMS has a good prognosis after surgery and post-operative steroid treatment. Long-term topical steroids control relapses and prolonged follow-up is required.

**CONCLUSIONS:** The therapeutic management of CMS included the external approach or combined endoscopic procedures in order to ensure best results. Endoscopic sinus surgery is the gold standard therapy for CMS non-responsive to conservative treatment.

### (28) MANAGEMENT OF EPISTAXIS IN HEREDITARY HAEMORRHAGIC TELANGIECTASIA

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**PURPOSE:** To provide a useful guideline regarding the treatment of acute and recurrent epistaxis in patients with hereditary haemorrhagic telangiectasia.

**METHODS:** Hereditary haemorrhagic telangiectasia (HHT), also known as Osler-Weber-Rendu disease, is a group of autosomal dominant disorders characterized by the presence of multiple arteriovenous malformations situated in the skin, the mucous membranes of internal organs such as lungs, liver and brain.

Prevalence of disease is 1 / 5000 cases.

Telangiectasias in nasal and gastrointestinal mucosa are the main cause of chronic bleeding and iron deficiency anemia.

This paper is a review of the literature regarding the management of epistaxis in patients with this pathology.

**RESULTS:** Studies have shown that nasal bleeding is the clinical characteristic that brings more than 90% of patients to hospital.

Management of these patients should include: systematic evaluation of the severity of nosebleeds, correction of anemia and iron deficiency caused by severe nosebleeds, referral to an otorhinolaryngologist, prevention of epistaxis using medical treatment with angiogenesis inhibitors such as bevacizumab, surgical treatment with less harmful techniques.

**CONCLUSIONS:** Treatment of these patients can be difficult and frustrating, because of repeated failures to keep the disease under control.

Nasal packing and electrical and chemical cautery can damage more the nasal mucosa which would further worsen bleeding.

Local therapy with inhibitors of angiogenesis (bevacizumab) is a promising variant for solving repeated nose bleeds, thus avoiding the systemic side effects of the substance.

zumab) is a promising variant for solving repeated nose bleeds, thus avoiding the systemic side effects of the substance.

### (29) APPLICATION OF ARTIFICIAL NEURAL NETWORKS IN RHINOLOGY: A REVIEW

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**PURPOSE:** To review the application of artificial neural networks in rhinology.

**METHODS:** Starting from the search engine PubMed and Google Scholar, we identified applications that use artificial neural networks in rhinology.

**RESULTS:** The complexity of medical practice makes the classical statistical analysis approaches insufficient at present. In medicine, artificial intelligence has proven efficient in many medical fields. Artificial neural models can be useful in supporting a diagnosis, as it is well known that the diagnosis of a pathology involves more imprecise data and certain levels of uncertainty, absolutely inherent in medical practice. They can also be used to track patient status, demonstrate the efficiency of a particular treatment or surgical technique, predict the risk of illness.

**CONCLUSIONS:** We are at a time when all aspects of life are influenced by artificial intelligence. Modern medicine has benefited from applications developed with artificial neural networks.

### (30) ORBITAL ABSCESS SECONDARY TO ODONTOGENIC INFECTION THAT OCCURS DURING DENTAL TREATMENT (CONSIDERATIONS ON A CLINICAL CASE)

**Eduard - Andrei Gheroghe**<sup>1</sup>, **I. Ionita**<sup>2</sup>, **G. Boborelu**<sup>2</sup>, **M. Ionete**<sup>1</sup>, **E. Ionita**<sup>2</sup>

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**PURPOSE:** Recalling the odontogenic implication in determining the extent of bacterial infection in ocular neighbouring organs.

Highlighting odontogenic sino-orbital complications.

**METHODS:** A patient with multiple bilateral dental residues undergoing dental treatment develops a unilateral exophthalmic complication.

**RESULTS:** Emergency hospitalization in the ENT clinic for unilateral orbital swelling. CT scan of the sinuses highlights right maxillo-ethmoido-sphenoidal sinusoidal changes with the presence of a round-oval formation with fluid and parafuid densities tangential to the lamina papyracea; one could also notice the presence of a subperiosteal air bubble with a fistulous communication path through the bone and leukocytosis 16000 / mmc. An emergency surgical intervention on the sinuses was made, with removal of

thickened mucous, gray, microabscesses and evacuation of the orbital collection through ethmoidal approach, having a favourable evolution.

The bacteriological examination of the sinus secretion did not reveal germs because the patient was under antibiotic treatment prescribed by the dentist. The particularity of the case stems from the fact that multiple dental residues have become vulnerable to dental treatment.

**CONCLUSIONS:** Avoiding the development of dental infection absolves the patient of important complications.

### (31) THE CO<sub>2</sub> LASER SURGERY FOR CHRONIC HYPERTROPHIC RHINITIS

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**PURPOSE:** The aim of the study is to present the efficacy of CO<sub>2</sub> laser surgery in the treatment of chronic hypertrophic rhinitis. The CO<sub>2</sub> laser surgery of hypertrophic inferior turbinates is a treatment of choice in allergic and non-allergic chronic rhinitis, refractory to local and general conservative treatment.

**METHODS:** A group of 75 patients, 29 males and 46 females, aged 18–65 years old, mean age 25.3, with chronic hypertrophic rhinitis refractory to medical treatment, were treated with CO<sub>2</sub> laser surgery. We used the hand-pieces and the laser single spot technique. Shrinkage of the mucosa with subsequent scarring can be observed during the laser procedure. It is important to keep intact mucosal island between the lasers spots, from which rapid reepithelialisation can originate. The pre- and postoperative control included anterior nasal rhinoscopy, nasal endoscopic examination and evaluation of subjective symptoms related by the patient. The follow-up was performed at 1, 6 and 12 months after surgery.

**RESULTS:** The surgery was performed under local anaesthesia, with no pain or bleeding. Healing was complete in 3–4 weeks. The subjective findings reported by the patients after the CO<sub>2</sub> laser surgery were classified as excellent, good, fair and no change. One month after the laser surgery, the subjective results revealed excellent and good results in 83% of the cases. Long-term results at 12 months showed 89.5% excellent and good results.

**CONCLUSIONS:** The CO<sub>2</sub> laser surgery is the best option in bilateral inferior turbinate hypertrophy with significant advantages: excellent haemostasis, minimal postoperative discomfort, rapid wound healing and low-grade morbidity.

### (32) THE ROLE OF TOTAL NASAL SYMPTOM SCORE IN THE EVALUATION OF ALLERGIC RHINITIS

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**PURPOSE:** TNSS (Total Nasal Symptom Score) represents an instrument to evaluate the impact of Allergic Rhinitis (AR) on the life of allergic patients. In this study we aimed to evaluate the correlation between TNSS and clinical and physiopathological aspects of AR.

**METHODS:** We have investigated 67 patients with AR and 38 controls. All participants were evaluated by allergist and otorhinolaryngologist. They were investigated using skin prick tests according to the European Academy of Allergy and Clinical Immunology guidelines, flexible fibroscopy of the nose, blood analysis (full blood count, serum total IgE). TNSS includes quantification of nasal congestion, runny nose, nasal itching, sneezing, sleep problems with 3 levels of severity: mild, moderate, severe.

**RESULTS:** Median value of TNSS was  $7.0 \pm 3.83$  (moderate disease). TNSS was correlated with nasal mucosal hypertrophy ( $r = 0.564$ ,  $p = 0.000$ ), sign of chronic inflammation. In correspondence with this, the duration of AR was correlated with TNSS ( $r = 0.532$ ,  $p = 0.000$ ). We have also noticed correlations with the level of respiratory allergy – polysensitization (more than two positive tests) ( $r = 0.772$ ,  $p = 0.000$ ) and the magnitude of them (diameter of hive  $r = 0.689$ ,  $p = 0.000$ ). Blood markers of atopy were also correlated with TNSS – hypereosinophilia ( $r = 0.240$ ,  $p = 0.022$ ) and total serum IgE levels ( $r = 0.283$ ,  $p = 0.03$ ).

**CONCLUSIONS:** TNSS is a useful tool to evaluate AR by allergists and ENT specialists.

### (33) MANAGEMENT OF EPISTAXIS IN THE ENT CLINIC TIMISOARA

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**PURPOSE:** The purpose of this work is to achieve better management of patients with nasal bleeding, admitted to the ENT Clinic Timisoara.

**METHOD:** We analyzed retrospectively the observation sheets of 900 patients with nasal haemorrhagic pathology admitted to the ENT Clinic Timisoara for a period of 8 years. Patients with anterior epistaxis as well as patients with posterior epistaxis were included in the study and the following parameters were evaluated:

age, sex, environment of origin, associated diseases, localization of bleeding, and especially the treatment method, as well as their evolution.

**RESULTS:** Of the total of patients evaluated, 729 cases presented with anterior epistaxis and 171 with posterior epistaxis. The main treatment method was nasal packing in a number of 765 cases and in 135 patients endoscopic cauterization of the haemorrhage was performed. The evolution was favourable, towards healing in a number of 897 cases, with only 3 death cases.

**CONCLUSIONS:** Emergency management of epistaxis still remains a priority of the ENT physician, not only due to the increased frequency of this pathology, but also to the complexity of the cases and especially the associated pathologies.

### (34) EXTERIORIZED FRONTO-ETHMOIDAL MUCOCELE – DIAGNOSIS AND THERAPEUTIC DIFFICULTIES

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**PURPOSE:** Mucocelles in frontal and ethmoid sinuses are diagnosed most frequently through complications by orbital or cranial extension. It is very important to rigorously evaluate the extension of a complicated fronto-ethmoidal mucocele in order to choose the optimal surgical procedure.

**METHODS:** We present a case series with exteriorized and complicated fronto-ethmoidal mucoceles.

**RESULTS:** In our case series, the mucoceles associate exophthalmia and eyelids ectropion. Another case associated endocranial extension after a gunshot trauma. All cases received CT scans and endoscopy exams.

The cases were analyzed by a mixed team with ophthalmologist, neurosurgeon and OMF specialist, ENT surgeon. In choosing the external or endoscopy approach, some essential aspects must be taken into consideration: mucocele extensions, age of the patient, associated pathology and surgical experience.

**CONCLUSIONS:** Such extension of the frontal and ethmoid pathology is a diagnostic and therapeutic challenge both for the patient and surgeon and success is measured only in the absence of mucocele recurrence.

### (35) ADVANTAGES OF THE OPEN APPROACH IN MEZZO- AND SUPRASTRUCTURE RHINOSINUSAL TUMORS

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**PURPOSE:** Malignant tumors of mezzo- and suprastructure are rarely diagnosed in early stages, presenting an insidious evolution. Diagnosis is based on the extension towards the orbit, anterior cerebral fossa and skin breakthrough. The external surgical approach for malignant tumors permits safe access to all local extension points.

**METHODS:** We elaborate on a case series with midfacial tumors.

**RESULTS:** We will describe 3 cases of midfacial tumors – two with squamous carcinoma and one case of intestinal-type nasal and sinus carcinoma. All cases benefited from high performance diagnostic imaging and endoscopy before surgery. The surgical approach was external – lateral nasal or frontal bi-coronal. We will elaborate on the surgical approach and on case evolution.

The external approach for carcinoma of mezzo- and suprastructure enables a direct control over tumor extensions and clean surgical margins with reduced bleeding and avoidance of piecemeal resections.

**CONCLUSIONS:** The external approach of midfacial tumors requires the involvement of a trained complex surgical team from various specialties. Regular follow-up with imaging and endoscopy for an early discovery of possible tumor recurrence is very important.

### (36) INFLUENCE OF INVOLUNTARY LIMB MOVEMENTS ON SLEEP QUALITY IN PATIENTS WITH SLEEP APNEA SYNDROME

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**PURPOSE:** The sleep stages are classically divided into two categories: NREM (slow waves) sleep in which cerebral activity is reduced compared to the rest of the body, and REM (paradoxical) sleep in which the brain is very active in contrast to most muscles in a state of relaxation, being associated with mental recreation, dream and long-term memory. Sleep limb movements (PLMS) consist of sudden spasmodic movements of the legs that occur involuntarily during sleep. These movements can involve hitting, leg extension or even

convulsions. If PLMS causes daytime insufficiency, such as excessive daytime sleepiness or significant sleep disturbances and insomnia, it may be referred to as periodic limb movement disorder.

**METHODS:** A retrospective statistical study including patients diagnosed with Obstructive Sleep Apnea Syndrome was conducted, from 2009 to 2015, by studying observation sheets and patient medical records.

We selected a representative group of 133 patients who were diagnosed with Obstructive Sleep Apnea Syndrome, performed polysomnograms with the SOMNOscreen polysomnograph and analyzed the recorded parameters. The choice of the patient group was based on the following criteria: age, sex, body mass index (BMI), sleep stages, apnea and hypopnea (AHI).

**RESULTS:** Based on the study, we can show the following conclusions: among patients diagnosed with obstructive sleep apnea, most are 50-60 years of age, predominantly male 78.9%.

**CONCLUSIONS:** In order to evaluate the involuntary events occurring in patients with Obstructive Sleep Apnea, and their influence on the severity of apnea, we came to the conclusion that: these events are of great importance for apnea patients but are incompletely investigated. Leg movement, snoring and microtreatment are causes but also consequences of the severity of Obstructive Sleep Apnea Syndrome.

### (37) RHINOMANOMETRY IN RHINOSINUSAL PATHOLOGY

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Chronic rhinosinusitis is a frequent infection characterized by inflammation and sinus edema due to long-lasting blockage at this level. The mechanism of production of chronic rhinosinusitis is a viral infection in the upper airway, when the blockage of the natural ostium will cause retention of the secretions in the sinus cavity and edema of the sinus mucosa. Mucociliary transport disorders due to the increased thickness of the pericardial layer, and on the other hand the change in viscosity and elasticity of the mucus, are manifested by the low motility of the cells. Other factors that may compromise the functions of the mucociliary apparatus are dry air, smoking, atmospheric pollutants and nasal irritants, viral infections, excessive heat or cold, hypoxia and medications such as anaesthetics, sedatives, nasal decongestants and beta blockers. The aim of this study is the impact that the nasal sinus pathology has on nasal cleansing and rhinomanometric parameters.

It is a retrospective observational study. In this study, we

analysed a sample of 123 patients divided in 2 groups. Data collection was done according to: anamnesis, objective examination, nasal endoscopy and rhinomanometry. In conclusion, nasal rhinomanometry has the role of identifying an obstruction in the nasal cavity, but cannot accurately tell what its etiology is. In order to highlight the cause of this obstruction, rhinomanometry is used in current medical practice.

### (38) ALLERGIC RHINITIS – ENT SPECIALIST POINT OF VIEW

**Adriana Neagos**

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The prevalence of allergic rhinitis (AR) has been estimated at 10% to 40%. Patients who suffer from allergic rhinitis sustain significant morbidity and loss of productivity. Cardinal symptoms include nasal congestion, rhinorrhea, sneezing and nasal itching, although multiple related symptoms may occur. Causes should be ruled out with a thorough history and physical examination, with particular attention to red flags or atypical symptoms. Skin testing or serum sampling can confirm diagnosis and also guide therapy. When traditional allergy testing, including skin prick tests and in vitro of specific IgE antibodies, is not sufficient for the diagnosis, modern techniques such as molecular diagnostics may be used. Also, the management of AR may be tailored to single patients according to the clinical expression of AR, which may vary from mild to moderate-severe stage, with the aim of achieving the best possible control of the disease. Therapy is multimodal, tailored to a particular patient's symptom burden and quality of life. The allergist is the most important consultant.

### (39) RHINOMANOMETRY IN OSAS PATIENTS

**Adriana Neagos**

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The correlation between physical examination, differential resistance and AHI scores support the hypothesis that position-related retropalatal segment alterations can be measured by passive rhinomanometry. Before the beginning of CPAP, treatment has a significant effect on the acceptance of CPAP in OSAS patients, and could be a predictive parameter for the initial acceptance of CPAP. The criteria for nasal surgery in patients with sleep apnea syndrome (OSAS) have not been proposed. The efficiency of nasal surgery for CPAP failure in patients with severe OSAS can be discussed. Continuous positive airway pressure (CPAP) is considered as the standard therapy for obstructive sleep apnea syndrome (OSAS), but some patients with OSAS are unable to accept CPAP due to nasal obstruction and poor nasal airflow. Increased nasal

resistance is a determinant of CPAP failure, and the surgical correction of severe nasal obstruction should thus be considered to facilitate treatment of OSAS patients with CPAP.

#### **(40) SLEEP APNEA SYNDROME – NEW CONCEPT IN DIAGNOSIS AND TREATMENT**

**Adriana Neagos**

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In the field of sleep-related breathing disorders, habitual snoring and severe obstructive sleep apnea syndrome can be included. The prevalence of habitual snoring is high and up to 60 % depending on age, sex and body weight. Clinical features of patients with upper airway resistance syndrome have been compared to patients with obstructive sleep apnea / hypopnea syndrome (OSAHS). No data regarding differences between patients with primary snoring (PS) or patients with obstructive sleep apnea / hypopnea without daytime sleepiness (OSAH) are available. There are many studies that investigate clinical features of UARS, comparing them to patients with primary snoring and OSAS. However, in contrast to habitual snoring, obstructive sleep apnea syndrome may be associated with medical complications. In adult patients, the prevalence of obstructive sleep apnea is 2–5 %. To diagnose obstructive sleep apnea, the clinical utility of diagnostic tests other than polysomnography can be correlated with morbidity and it is important to discuss what the practical implications are for treatment. There are important steps in diagnostic and therapeutic options. Continuous positive airway pressure therapy (CPAP) is the standard treatment for obstructive sleep apnea. However, long-term compliance of CPAP therapy is limited. Alternative therapeutic possibilities are presented and can be discussed.

#### **(41) THE ROLE OF FUNCTIONAL ASSESSMENTS IN OSAS**

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Obstructive Sleep Apnea Syndrome (OSAS) is believed to be associated with craniofacial and neuromuscular changes, although the interplay among these variables is still poorly recognized. There is a higher predisposition of OSAS patients to present an inferior hyoid positioning, accompanied by myofunctional and swallowing disorders. In non-obese and obese OSAS patients, skeletal changes were often evident. In obese OSAS patients, alterations of the oropharyngeal soft tissue were not always present and did not prevail. OSAS is associated with changes in pharyngeal anatomy too. The tongue size, airway visibility and Mallampati scores can be associated with increased OSAS risk and severity. Morphometrical and

functional investigations represent an important method of examining or screening for OSAS. Clinical findings in patients with OSA do correlate with the severity of OSA and polysomnographic findings. The nasopharyngeal examination findings can be compared to those of polysomnography, which is considered to be the gold standard in positional and nonpositional obstructive sleep apnea syndrome (OSAS) patients. Patients with OSAS or snoring underwent polysomnography recordings and otorhinolaryngologic examination, including fiberoptic nasopharyngoscopy with the Müller manoeuvre. The correlation of the data scored with the polysomnographic findings and body mass index (BMI) must be investigated. The degree of upper airway collapse during Müller manoeuvre, as functional assessment, does correlate with AHI severity. Body mass index, another important parameter, should be correlated with the apnea-hypopnea index (AHI), in different positions. When upper airway obstruction is evaluated, AHI and positional AHI values should be used separately and must be correlated with BMI and polysomnographic results.

#### **(42) OLFACTOMETRIC ASSESSMENT – LIMITS AND DIFFICULTIES**

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Olfactory disturbances are becoming very common among patients presenting for ENT evaluation. They can be caused, most frequently, by rhinosinusal pathology, viral infections of the upper respiratory airways or head trauma. Sometimes, there is no cause found for the smell impairment (idiopathic smell loss). Head trauma is considered to be the third cause of olfactory function disorders and most of these patients are involved in law trials. Their purpose is to obtain financial compensations from the author of the aggression or of the car accident. For this reason, it is compulsory to perform a complete assessment of the patients, based on a thorough anamnesis, complete ENT examination, good imaging of the brain (focused on the olfactory bulb) together with subjective and objective olfactometric evaluation.

“Sfanta Maria” ENT Department, Bucharest, is the only center in Romania where the olfactory function is completely investigated. We use chemosensory (Snap and Sniff Test and n-Butanol Dynamic Olfactometry) and electrophysiological tests (electric olfactory evoked potentials of the olfactory bulb).

We are dealing with a series of difficulties in what con-

cerns the smell function evaluation: 1) there is scarce information in the literature regarding the electric olfactory evoked potentials; 2) only the electrical activity of the olfactory bulb is registered by the electric olfactory evoked potentials; 3) in case of olfactory impairment medically confirmed, we cannot establish a cause-effect relationship between the disturbance and the event; 3) the most accurate electrophysiological assessment method currently available in Europe is the time-frequency analysis of chemosensory event-related potentials, but we do not dispose of the necessary equipment yet; 4) sometimes, patients do not give us the informed consent for a complete olfactory evaluation.

#### **(43) EMERGENCY SURGICAL TREATMENT OF COMPLEX MIDFACE FRACTURE – CASE REPORT**

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**PURPOSE:** Injuries of the external nose and nasal bone fractures are the most frequent lesions of the midface.

**METHODS AND RESULTS:** We present a case of a complex midface fracture with incomplete nasal pyramid dislocation appeared to a 28-year-old male, who was a victim of a bicycle accident. Since he had multiple fractures (pyramid bone fracture, left medial maxillary sinus wall fracture, left lateral periorbital wall fracture associated with left retrobulbar eye edema), he needed an emergency orotracheal intubation and surgical treatment, which consisted in open reconstruction of the midface fractures. The short- and long-term results are presented in this case report.

**CONCLUSIONS:** Nasal bone fracture is one of the most common facial bone fracture types, and the surgical results exert a strong influence on the facial contour and patient satisfaction. Preventing secondary deformity and restoring the original bone state are the major goals of surgeons managing nasal bone fracture patients.

#### **(44) GERHARDT'S SYNDROME AS THE INITIAL MANIFESTATION OF SYSTEMIC MYASTHENIA GRAVIS AND LYME DISEASE – CASE REPORT**

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**PURPOSE:** Gerhardt's syndrome represents a dissociated bilateral palsy of vocal cord abductors or a glottic dilators palsy.

**METHODS AND RESULTS:** A case of laryngeal myasthenia gravis and Lyme disease in a 35-year-old man presenting with hoarseness as the main symptom is reported. An emergency tracheotomy was performed in the first place. No cranio-cervical tumors were seen on cranio-cervical IRM test, no thymoma was seen on chest X-ray and the patient was positive for anti-acetylcholine receptor antibodies and a positive Lyme dis-

ease serology test (anti-borrelia burgdorferi antibodies). Treatment for laryngeal myasthenia gravis and Lyme disease was initiated and the patient's vocal problems are improving.

**CONCLUSIONS:** This case emphasizes the need to consider systemic diseases in the differential diagnosis of hoarseness and demonstrates the need for careful follow-up in such patients.

#### **(45) MIDDLE MEATAL ANTROSTOMY: TESTIMONIAL OF A YOUNG RESIDENT**

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The maxillary sinus is without any doubt one of the most difficult sinuses to cure medically or surgically. Currently, endoscopic middle meatal antrostomy is the most commonly performed sinus surgery for maxillary sinusitis.

Despite the great development of endoscopic technology, specific endoscopic surgical instruments and the understanding of the pathophysiology of the sinus diseases, this apparently simple surgical procedure is not that easy as it is believed, especially for young beginners. Success of maxillary sinus antrostomy depends on including the natural ostium to the antrostomy. For this to happen, the natural ostium should be identified during the surgical procedure. For those with little experience in endoscopic sinus surgery, there are some obstacles that make this procedure difficult. The structural, anatomic and pathological variations, the absence of reliable landmarks for identification of the natural ostium of the maxillary sinus plus limited skills for handling instruments and endoscopes are just some of the impediments a resident doctor is facing. In this paper, we would like to expose the frequent causes of failures in endoscopic middle meatal antrostomy and the main issues a beginner is facing during this surgical procedure.

#### **(46) PARANASAL SINUS OSTEOMA – CASE REPORT**

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**PURPOSE:** Osteomas are defined as benign osteogenic tumors, characterized by proliferation of the compact cortical bone. They affect the bones with intramembranous ossification (skull, mandible, clavicles), they have a slow growing rate and they are most commonly found in the head and neck region, with the most frequent location into the frontal sinus, followed by the ethmoid, maxillary and sphenoid sinuses.

Clinical manifestations are often absent or unspecific.



The symptoms that may be present include headache, chronic nasal obstruction, pressure sensation in the projected area of the affected sinus, rhinorrhea, epiphora and in case of orbital involvement, exophthalmia, diplopia, palpebral edema. The therapeutic approach is established according to the size and location of these lesions. Small osteomas, without any symptoms, do not necessarily require treatment.

Diagnosis is based on the skull X-ray, CT scan or MRI (extension to surrounding regions). Surgery is the “gold standard” treatment, with complete tumor excision.

**METHODS:** We are reporting a case of a 68-year-old woman, who came to our ENT Clinic accusing headache and right chronic nasal obstruction, symptomatology with onset of approximately two years. The clinical examination in conjunction with the nasal endoscopic examination and the paranasal sinuses computed tomography sustain the diagnosis of right ethmoid osteoma with orbital extension.

**RESULTS:** The patient underwent surgery under general anaesthesia and a subtotal tumor excision was performed, due to the intraorbital invasion.

**CONCLUSIONS:** Although present in rare cases, osteomas of the facial region need to be differentiated from other bony tumours and must be treated if symptomatic. Surgery is the main treatment for these cases. The final diagnosis should always be confirmed by the histopathological analysis of the specimen.

#### (47) MANAGEMENT OF CRANIOFACIAL PAIN – DIAGNOSIS AND TREATMENT

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Pain is an intense somato-psycho-emotional phenomenon that can accompany both trivial and extreme illness. The ENT practitioner must have a classification, diagnosis and appropriate therapies for painful craniofacial syndromes.

The classification of facial pain includes the following entities: acute nasal pain syndromes, chronic rhinosinusitis headache and neuralgia. Acute nasal pain may be determined by folliculitis, furunculosis, cracks and ulcers, herpes, nasal trauma. Chronic headache in rhinosinusitis can be associated with facial pressure sensation or head fullness, accentuated when bending the head. The neuralgia is characterized by frequent crisis accompanied by vasomotor disorders and sometimes psychic changes. In facial neuralgias, there are the following clinical forms: trigeminal neuralgia, Sluder Syndrome, Charlin’s syndrome, Harris Ciliary neuralgia, Sphenopalatine ganglion neuralgia.

Clinically, location and typical pain symptoms are important. The nasal endoscopic examination combined

with CT/MRI helps to identify the cause of headache disorder: chronic rhinosinusitis, concha bullosa, posterior septal deviation, etc. Full assessment of a patient with craniofacial pain includes ENT, dental, neurological examination and imaging exploration.

The treatment of craniofacial pain is complex depending on its etiology. Drug treatment includes non-steroidal anti-inflammatory drugs, corticosteroids, ergotamine, calcium channel blockers. Local treatment is represented by anaesthetic nerve infiltration or local application of substances. After identifying the cause of headache, sinus endoscopic interventions may lead to the disappearance of symptoms.

Pain represents a clinical entity with its own physiological and pathological mechanisms. It is important to have an efficient system in order to evaluate the patient with craniofacial pain and to differentiate the painful syndromes. Pain therapy is and will continue to be a subject of clinical and scientific interest.

#### (48) DIFFICULTIES IN DIAGNOSIS OF THE SINONASAL INVERTED PAPILLOMA

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Inverted papilloma is a rhinosinusitis benign tumor, characterized by an inverse epithelial proliferation digitiform-like aspect. The most common site of origin is the nasal side wall in the region of the middle meatus and ethmoid cells, but it can be found anywhere in the nasosinusitis tract.

The etiology is unknown; the incriminated factors are chronic rhinosinusitis, allergy, pollution and viral infection. Various studies support the implication of HPV in the inverted papilloma etiology.

The clinical aspect is characterized by unilateral nasal obstruction, rhinorrhea, headache and epistaxis. The nasal examination shows a tumor polyposis-like which can lead to misdiagnosis – superficial ablation and the anatomopathological examination show only inflammatory polyps.

The main radiologic investigation is CT scan which reveals a unilateral lesion and a bony structure – the site of insertion. Imaging limits can also cause diagnostic errors by the inability to differentiate tumor tissue from stagnant viscous secretion.

The delay of diagnosis can be responsible for advanced stages of the disease, making it difficult for treatment, as well as the risk of tumor arrest and malignant degeneration.

#### (49) JUVENILE NASOPHARYNGEAL ANGIOFIBROMA – A CHALLENGING SITUATION IN DIAGNOSIS AND TREATMENT

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Juvenile nasopharyngeal angiofibroma (JNA) is a rare benign highly vascular tumor arising predominantly in the nasopharynx of adolescent males. The etiology of JNA remains unknown, but sex selectivity suggests that this tumor is hormone dependent. The most common symptomatology of JNA is represented by progressive unilateral nasal obstruction, multiple episodes of unilateral epistaxis and rhinorrhea.

Diagnosis of JNA is based on the history of the patient, clinical examination, nasal endoscopy, CT-scan, magnetic resonance imaging (MRI) and arteriography. The surgical treatment is considered the “gold-standard” in this pathology, with various techniques, such as endoscopic surgery with preoperative selective embolization, classic external approach or combined, depending on the size and extension of the tumor. Non-surgical treatment of JNA is based on radiotherapy, chemotherapy, hormonal therapy with anti-androgens, embolization, etc.

We present the case of a 23-year-old male patient, diagnosed in 2012 with JNA, with multiple surgical interventions. The first one was performed in September 2013 with preoperative angiography and selective markers embolization of the right maxillary artery and consisted in subtotal removal of the tumor, due to massive bleeding and infiltration of the lateral wall of the rhinopharynx. In March 2014, the patient underwent another endoscopic rhinosinusal surgery due to the tumoral relapse, with ligation of the right external carotid artery and total ablation of the nasopharyngeal angiofibroma.

#### (50) ANATOMICAL TYPES OF THE SOFT PALATE IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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**PURPOSE:** Obstructive Sleep Apnea Syndrome is characterized by the occurrence of recurrent episodes of upper airway collapse which result in partial or total stopping of the airflow over the oronasal region over 10 seconds. The severity of this syndrome is marked by the consequences that it has: intermittent desaturation, excessive daytime sleepiness.

The purpose was the identification of anatomical variations of the soft palate that favour the manifestation of obstructive sleep apnea syndrome.

**METHODS:** Descriptive study. A lot of 40 patients were included in the 10-question selection questionnaire. Examinations performed for the patients: oropharynx, rhinoscopy with topical anaesthesia (10% lidocaine and 0.18% adrenaline), otoscopic and indirect laryngoscopy.

**RESULTS:** Following the examination, five anatomical types of the soft palate were identified: the soft-palate type with a normal appearance in 5 patients; the second type – the initial stage of hypertrophy – 14 patients; the third stage – the stage of apparent hypertrophy – 12 patients; the fourth type of soft palate hypertrophy in obese people – 7 patients; V-type scar change of the soft palate – 2 patients.

**CONCLUSIONS:** (1) Patients with signs of obstructive sleep apnea syndrome have anatomical changes in the soft palate. (2) It remains to be elucidated whether the identified modifications can be considered as the only contributing factor to obstructive sleep apnea syndrome or constitute only one of a polyfactorial etiology.

#### (51) THE INDICATIONS OF ENDOSCOPIC TRANSNASAL ORBITAL DECOMPRESSION IN COMPLICATED RHINOSINUSITIS

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Despite the modern antibiotherapies applied in the otorhinolaryngology practice, suppurative extensional rhinosinusitis to the orbit is still a common complication. If they are not treated adequately, they can lead to partial or complete visual loss and life-threatening complications. Currently, the standard for the management of orbital complications is surgical drainage combined with aggressive medical treatment.

Orbital decompression plays an important role in the management of patients with acute rhinosinusitis complicated with orbital subperiosteal abscess.

There are multiple techniques described for orbital decompression, including external, transantral, transcaruncular, transconjunctival approaches, but over the past several years, with the great development of the optical technology and the advancement in endoscopic surgery, the main surgical approach technique has been orbital decompression performed under endoscopic guidance with minimal complications.

In this paper, we would like to make an update regarding the patients selection, the surgical planning and to point out the recent advances in surgical technique in order to improve the patient outcomes and decrease the complications that can occur.

## (52) PROGNOSTIC VALUE OF HPV DETECTION IN NASAL PAPILOMAS

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**PURPOSE:** Nasal papillomas are rare tumors of the nasal cavity and paranasal sinuses. There are three different morphological types of sinonasal papillomas: exophytic (everted) squamous cell papilloma, inverted papilloma and cylindrical cell papilloma. There are 3 characteristic features in the natural history of these tumors: (1) the tendency to recur, (2) their destructive capacity to surrounding structures, and (3) their potential for malignant transformation.

**METHODS:** We performed a clinical prospective study on 30 patients: 60% male and 40% female. Study inclusion criteria: adult patients with positive diagnosis of nasal papillomas; patients who have performed surgery; patients who have not performed viral analysis. Study exclusion criteria: patients with immune deficiencies (HIV/AIDS, tuberculosis, malignancies), pregnancy and lactation, patients with advanced disease where surgery is contraindicated.

**RESULTS:** All patients were histologically diagnosed with nasal papillomas: 16 patients (53.3%) Inverted Papillomas, 12 patients (40%) Exophytic Papillomas and 2 patients (0.67%) Cylindrical Cell Papillomas. The biological material consisted of intraoperative biopsies that were used to perform viral genotyping. The prevalence of HPV in nasal papillomas in our study was 48%. (HPV negative 52%).

**CONCLUSIONS:** The etiology of SPs remains unconfirmed. The frequent causes of SPs are: allergies, chronic sinusitis, airborne pollutants and viral infection (HPV, EBV). A clinical tendency for nasal papillomas to recurrence and malignant transformation, even after radical surgery, suggests the possibility of HPV involvement.

## (53) EVALUATION OF NITRIC OXIDE AND PEROXYNITRITE LEVELS IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

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**PURPOSE:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is a chronic inflammatory disease with incompletely understood etiology. Current understanding supports that nitric oxide (NO) and its counterpart reactive nitrogen species like peroxynitrite (NO<sub>2</sub>) may

participate in pathophysiological events of CRSwNP. The purpose of this study was to evaluate the NO and NO<sub>3</sub><sup>-</sup> levels in patients with CRSwNP.

**METHODS:** Eighty-two patients, divided into two groups, were recruited in the study; group 1 (N<sub>1</sub>=41) consisted of patients with CRSwNP and group 2 (N<sub>2</sub>=41) consisted of patients with septal deviations and turbinate hypertrophies. Polyp specimens were taken from patients who underwent endoscopic surgery for CRSwNP. Control specimens were obtained from patients who underwent an operation for septoplasty or turbinate hypertrophy. The concentration of NO and NO<sub>3</sub><sup>-</sup> was measured by the spectrometric method in homogenized polyp tissue and control specimens. The difference of the mean concentrations was analysed with the Mann-Whitney test.

**RESULTS:** We have found a significant correlation between mean NO and NO<sub>3</sub><sup>-</sup> concentration in polyp tissues and control specimens by using the Mann-Whitney test. Group 1 had significantly lower NO levels (U=171.5, N<sub>1</sub>=41, N<sub>2</sub>=41, p<0.0005) and NO<sub>3</sub><sup>-</sup> levels (U=318.0, N<sub>1</sub>=41, N<sub>2</sub>=41, p<0.0005) in tissue specimens.

**CONCLUSIONS:** These data suggest that the nasal polyp environment is characterized by abnormalities in NO metabolism that might predispose to an altered regulation of tissue growth. NO and NO<sub>3</sub><sup>-</sup> may be important in the pathophysiology of nasal polyposis.

## (54) IS THERE AN IDEAL TREATMENT OPTION FOR HEREDITARY HAEMORRHAGIC TELANGIECTASIA?

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Epistaxis is the most common symptom of HHT and it occurs secondary to telangiectasias that develop on the nasal mucosa. There are a wide variety of therapeutic options like the ones below, but it seems that none of them are perfect. These methods include: topical treatments; nasal packing; medication; local sclerotherapy; selective/supraselective embolization; chemical cauterization. The surgical solutions are: electric cauterization, KTP, Nd:YAG, ARGON LASER, Radiofrequency, Septodermoplasty, Young's occlusion, arterial ligations.

Therapeutic embolization of the nasal blood circulation shows good results in the short term but, no evidence of any long-term benefit (re-establishment of collateral supply?).

Recent studies reveal that, in Rendu-Osler disease, an increase in the vascular endothelial growth factor (VEGF) levels appears because of certain genetic mutations of the vascular endothelium. The administration of an anti-VEGF may lead to a significant decrease in epistaxis occurrence.

Laser treatment tends to be most successful in patients who report mild to moderate epistaxis, and repeated treatments may have an additive effect. It is a safe, well-tolerated procedure with significant efficacy in the short term. It should be considered as an alternative technique for managing HHT related epistaxis, although long-term results remain to be evaluated. Septodermoplasty consists in removal of the diseased nasal septal mucosa, replacement with a split thickness skin graft followed by nasal packing for 3 days. The only known curative treatment is the surgical closure of the nasal cavities using the technique of Young. This surgical procedure leads to serious consequences in terms of patient quality of life, like permanent mouth breathing. It is reserved for: severe epistaxis, unresponsive to other treatments, with significant reduction in their quality of life and overall wellbeing. If the procedure is reversed, nasal telangiectasia is still present and bleeding starts again. Is there an ideal treatment option for hereditary haemorrhagic telangiectasia? We are not saying no, just saying not yet.

#### **(55) THE INDICATIONS OF RADICAL ANTROSTOMY (CALDWELL-LUC ANTROSTOMY) IN THE ERA OF ENDOSCOPIC SURGERY (CASE REPORT)**

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**PURPOSE:** Caldwell-Luc antrostomy – also known as radical antrostomy – has been used for a long time as a standard surgical procedure in the treatment of chronic maxillary rhinosinusitis, but nowadays, its indications are limited, due to the development of endoscopic surgical techniques.

**METHODS:** We are presenting a case of a 20-year-old male patient, who came to our ENT clinic with rhinorrhea, facial pressure, nasal obstruction and cacosmia. The clinical otorhinolaryngologic examination together with the radiological examination (CT scan) was suggestive for chronic suppurative maxillary and ethmoid rhinosinusitis. Although correctly conducted maximal medical treatment was administered and also completed by endoscopic rhinosinus surgery, the patient's symptomatology persisted.

**RESULTS:** The patient was posted for radical surgery of the maxillary sinus (Caldwell-Luc technique) under general anaesthesia via a Caldwell-Luc approach with good postoperative healing.

**CONCLUSIONS:** Although the endoscopic approach is currently considered the standard technique in the treatment of maxillary sinusitis, selected cases of patients require the Caldwell-Luc technique.

#### **(56) INTRASINUSAL AMELOBLASTOMA - WHAT TO DO?**

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**PURPOSE:** Ameloblastoma represents the most common epithelial odontogenic tumor. The surgical treatment should be as radical as possible due to the proximity to the maxillary sinuses, to the orbit and to the skull base. The ameloblastoma is characterized by its locally aggressive behaviour and a high recurrence rate.

Due to the presence of thin bone, of the surrounding elements and weak barriers, the tumor can extend into the sinonasal passages, pterygomaxillary fossa and eventually into the cranium and the brain.

Maxillary involvement is a common random radiologic finding for the paranasal sinuses and the teeth. There is no efficient medical treatment of this pathology. The surgical approach consists in Caldwell-Luc technique or endoscopic transnasal technique.

**METHODS:** We performed a retrospective cohort study on articles published between 2015 and 2019 in international scientific databases. The purpose of our study is to see if endoscopic sinus surgery is a good option for treatment or if the Caldwell-Luc approach remains the main surgical method.

**CONCLUSIONS:** Ameloblastoma is a rare tumor of the maxillary sinus; treatment should be applied as soon as possible; the choice of the proper surgical technique should be the one with the best results for the patient, due to the high recurrence rate in case of partial tumoral ablation.

#### **(57) SINONASAL INVOLVEMENT IN WEGENER GRANULOMATOSIS**

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Wegener granulomatosis is an autoimmune disease most commonly associated with rhinosinus impairment.

Typical nasal involvement consists of: mucosal inflammation with obstruction, foul-smelling crusts (the tissue underlying the crust is extremely friable), epistaxis, persistent rhinorrhea, and purulent/bloody nasal discharge. Ulcerations can lead to perforation of the nasal septum with deformations of the nasal bone "in saddle". Sometimes, sinusitis appears to be the first sign of this pathology, and an endoscopic surgical cure for healing is often attempted, but it relapses. The maxillary sinuses are mainly affected, but the inflammation may extend to the other paranasal sinuses. Sometimes, sinusitis can be complicated with bone ulcer or bacterial superinfection.

Also in the ENT sphere, this pathology can affect the ear causing: chronic suppurative media otitis, hearing loss and vertigo.

We present the case of a 46-year-old woman patient who was diagnosed with Wegener granulomatosis with manifestations in the ENT sphere (rhinopansinusitis and hearing loss), but also with systemic manifestations (renal, ocular and musculoskeletal). Although the patient had undergone endoscopic sinus surgery in the past, with multiple biopsy sampling, the diagnosis was missing (chronic inflammatory process with polyposis). Because of the clinical aspect and paraclinical investigations (increased inflammatory markers), Wegener disease was considered. The presence of cANCA antibodies with the antigenic substrate represented by proteinase 3 was detected, so the diagnosis was established.

The sinonasal manifestation of Wegener disease should be considered when we deal with chronic inflammation (obstruction, foul-smelling crusts, epistaxis, persistent rhinorrhea, purulent / bloody nasal discharge) and an interdisciplinary approach can establish the diagnosis and treatment.

#### **(58) FRONTAL MUCOCELE EXTENDED TO CRISTA GALLI – CASE REPORT**

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The rhinosinusal mucocele is a benign cystic tumor that appears as a result of chronic inflammation of the seromucous glands that lie in the nasal mucosa. The cyst contains viscous liquid and is limited to its own membrane. Pathologically, there is a chronic inflammatory process that causes obstruction with alteration of the mucous quality and disturbance of the mucociliary clearance. If the obstruction of normal drainage persists, the mucocele grows in volume and can invade surrounding structures. The most frequent location for the development of a mucocele is the frontal sinus.

The authors present a case of a frontal mucocele with extension to the crista galli area on the right, probably the result of the frontal recess closure. The diagnosis is based on the symptoms of the patient, particularly orbital pain, diplopia and frontal headache. The endoscopic exam shows the protrusion of the anterior wall of agger nasi cell. CT imaging points the presence of the frontal mucocele and its extension to the crista galli and classifies the ethmoidal roof to a Kerros 3 staging that has a greater risk of intraoperative skull base penetration.

The therapeutic management consists in endoscopic marsupialization of the frontal mucocele and the con-

trol of the residual cavity towards the frontal sinus and skull base. With the help of a good preoperative investigation, we were able to perform an endoscopic approach despite the haemorrhagic risks (the anterior ethmoid artery) and the intracranial complications.

The follow-up CT and endoscopic exam show a large cavity, normal drainage and healthy mucosa. The difficulty of this case consists in correctly widening the frontal recess without orbital or intracranial penetration. From our experience, in cases like this, the gold standard surgical technique is represented by the endoscopic approach with navigation system.

#### **(59) ENDOSCOPIC APPROACH OF THE MAXILLARY SINUS**

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The authors are focusing on reviewing the endoscopic surgical techniques in approaching the maxillary sinus. The real advantage of endoscopic surgical techniques is represented by preserving the physiological drainage of the maxillary sinus and patient's quality of life.

Indications of endoscopic sinus surgery cover almost all pathologies of the maxillary sinus, with some exceptions regarding malignant tumors and trauma. The inflammatory pathology of the maxillary sinus requires endoscopic drainage techniques, while the tumoral pathology requires a larger endoscopic approach for successful tumoral resections.

The maxillary sinus is approached on its medial wall (lateral wall of the nasal cavity). Endoscopic surgical techniques in approaching the maxillary sinus are presented in turn – inferior meatotomy, middle meatotomy, middle maxillectomy and prelacrimar approach, insisting on surgical indications as well as on the surgical technique itself.

#### **(60) CT SCAN FOR PARTICULAR ASPECTS OF THE RHINOSINUSAL ANATOMY**

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Anatomy, with the help of radiology, is the foundation on which the understanding of normal and pathological structures is based. Nowadays, the conventional radiology has been replaced by CT imaging for a more detailed study of the nasal cavity and paranasal sinuses. The authors are focusing on the particular aspects of the anterior paranasal sinuses and the structures of

the lateral nasal wall, as well as on the posterior sinuses, the sphenoid and the posterior ethmoid and the neurovascular elements that are present nearby. Anatomic variations studied include pneumatization of the middle turbinate, paradoxical curvature of the middle turbinate, Haller's cells and pneumatization of the uncinate process, sphenoethmoid cells (Onodi cells), sphenoid sinus wall variations, such as septa attached to the carotid covering and penetration of the sphenoid by the internal carotid artery or optic nerve. CT scans help the surgeon to identify the normal and particular aspects of anatomy for each patient in order to restore the normal rhinosinusal function and minimize the risk of intraoperative complications.

### **(61) CORRELATION BETWEEN PHARYNGOLARYNGEAL REFLUX AND INFERIOR TURBINATE HYPERTROPHY – A PILOT STUDY**

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**PURPOSE:** In the past, the pharyngolaryngeal reflux was considered to be a complication of the gastroesophageal reflux. The gastroesophageal reflux disease is a gastroenterological clinical entity and represents all symptoms due to the reflux of gastric contents in the esophagus, whether or not accompanied by lesions of the esophagus mucosa, diagnosed and managed by the gastroenterologist. The pharyngolaryngeal reflux, also known in the literature as “the silent reflux”, is considered to be a distinct clinical entity, diagnosed and managed by the otorhinolaryngologist, due to specific symptoms caused by the elevation of gastric juice in the pharyngeal-laryngeal axis, which produces lesions of the pharyngo-laryngeal mucosa.

**METHODS:** The authors are focusing on a cohort of 80 patients suffering from pharyngolaryngeal reflux associated with chronic nasal obstruction diagnosed by nasal endoscopy and rhinomanometry. In the cohort were included only the patients with inferior turbinate hypertrophy, not the ones with septal deviation and inflammatory, infectious or allergic rhinitis.

**RESULTS:** In our cohort of 80 patients with pharyngolaryngeal reflux, 61 patients were suffering from inferior turbinate hypertrophy which determines a nasal obstruction syndrome. The hypertrophy of the posterior part of the inferior turbinate was visualised through rigid or flexible nasal endoscopy and the nasal obstruction was measured by anterior rhinomanometry.

**CONCLUSIONS:** The pharyngolaryngeal reflux is a clinical entity which affects both the digestive passage

and the superior respiratory tract. It has been found that 80% of the patients suffering from pharyngolaryngeal reflux have developed inferior turbinate hypertrophy, especially localized at the posterior part, and leads to chronic nasal obstruction associated with an increased risk of rhinopathy and OSAS.

### **(62) INCREASED NASAL RESISTANCE AND SLEEP-DISORDERED BREATHING**

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The role of the nose and its importance in the development and severity of sleep-disordered breathing (SDB) is still a matter of discussion. Nasal obstruction may trigger the sleep-disordered events and it is considered to be a co-factor in their pathophysiology.

The significance of impaired nasal breathing for the pathogenesis of SDB, in particular primary snoring and obstructive sleep apnea, has only been elucidated to a minor extent, although several studies indicate that there is a certain connection. A particularly attractive area of exploration concerns elevated nasal resistance, since it leads to an increase in inspiratory negative pressure in the unstable pharyngeal segments and in the thorax.

Physiological mechanisms that explain the relationship between nasal airflow and breathing during sleep are different, the upper airway collapsibility, the unstable oral airway proposition, the nasal ventilatory reflex or the role of nitric oxide being part of these mechanisms.

However, the relation between cause and effect still remains a matter of debate.

### **(63) MALIGNANT TUMORS OF THE NASAL CAVITY AND PARANASAL SINUSES**

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**PURPOSE:** The aim of the study is to review the management of malignant tumors of the nasal cavity and paranasal sinuses based on cases treated by the authors.

**METHODS:** The management of 17 malignant tumors of the nasal cavity and paranasal sinuses was analysed. We encountered 5 adenocarcinomas, 3 squamous cell carcinomas, 1 rhabdomyosarcoma, 1 adenoid cystic carcinoma, 1 myxofibrosarcoma, 1 lymphoma, 1 hemangiopericytoma and 4 Schneider papillomas and precancerous tumors. Computer tomography (CT) scanning and magnetic resonance imaging (MRI) were performed in all cases; the most common stage was stage II and stage III. Biopsy was performed using a rigid endoscope under general anaesthesia. Based on the histopathologic results, the treatment consisted in surgery combined with radio- and chemotherapy.

**RESULTS:** The prognosis of treatment outcome depended on tumor histopathology, extent of disease and surgical resection margins. Patients with adenoid cystic carcinoma and hemangiopericytoma had the longest survival rate, while a patient with rhabdomyosarcoma had the lowest survival rate.

**CONCLUSIONS:** Patients are usually diagnosed in advanced stages of the disease because of the scarce symptomatology. Surgical resection must be performed with curative intent. Endoscopic or external approaches (or both) can be used; however, oncological principles must represent a priority. In the future, intensity modulated radiation therapy and chemotherapy could represent very important adjuvants.

#### (64) THE ENDONASAL APPROACH IN RHINOPLASTY – MY EXPERIENCE

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**PURPOSE:** The endonasal approach in rhinoplasty remains a technique appreciated by many of today's plastic surgeons. The author proposes to present, in a more detailed manner, the refined steps of this surgical procedure and the results obtained.

**METHODS:** The endonasal rhinoplasty technique was performed on a group of 50 patients. Indications for surgery were aesthetic deformity, change in nasal shape and improvement of anatomical nasal airway obstruction. Patients with stable mental status, marked nose deformity and those who accepted the risk of complications were selected for surgery. In most cases, septoplasty and turbinate reduction was also necessary. In 40 cases, the surgery of the nasal tip was performed by the nondelivery approach. In all cases, hump resection was performed together with medial-oblique and low lateral osteotomies. A special emphasis has been placed on the use of sharp instruments.

**RESULTS:** All patients were satisfied with the aesthetic and functional results. The complications consisted in excessive intraoperative haemorrhage in 6 cases, persistent edema and ecchymosis in 4 cases, paranasal callus 1 case, red telangiectasia of the nasal bony pyramid in 1 case.

**CONCLUSIONS:** In my opinion, endonasal rhinoplasty has several advantages such as shorter operative time, the ability to make exacting changes in situ, less prolonged postoperative swelling, less postoperative skin contracture, decrease in the potential for overall scarring or iatrogenic insult to the nose.

#### (65) INTERDISCIPLINARY CLARIFICATIONS CONCERNING THE PROBLEMATIC OF THE ETHMOID SINUS PATHOLOGY

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**PURPOSE:** Rhinosinusal pathology is in a continuous numerical increase, sometimes taking on quite particular forms of presentation. We are addressing the orbital complications where clarifications are needed regarding aspects of diagnosis and treatment. On the one hand, it is well known the general classification of the rhinological pathologies in acute, subacute, recurring and chronic, and, on the other hand, the applied curative or preventive medical approach. On this behalf, we consider usefully debating this issue.

**METHODS:** Based on specific cases identified in the practice of the Ophthalmology, Neurosurgery and Otolaryngology Clinics of Tg. Mures in the past 20 years, important observations were made regarding cysts and mucoceles in the frame of sino-orbital pathologies. Since novelty cases have been identified among the 27 cases analysed, giving rise to new questions, we were obligated to search for answers.

**RESULTS:** In the context where two possible conditions exist, one being the existence of the actual sinus pathology, with no copathology, and the other presenting with copathology, although it is not clearly stated, we consider these modifications preponderantly of a recurrent nature. If we accept this classification, the diagnostic attitude must be as complete as possible and the surgical approach has to be completed with preventive measures.

**CONCLUSIONS:** Thus, the conservative medical treatment must be combined with FESS, applied beyond a simple drainage, oftentimes in combination with reconstructive procedures in complex interdisciplinary teams.